EGD BATTERY POWER REVOLUTIONISING COMMERCIAL LAWN MAINTENANCE

THE CASE FOR BATTERY-POWERED EQUIPMENT Redefined for professionals.

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A PETROL BRUSH CUTTER EMITS 11X MORE CO2 THAN A LIGHT DUTY PASSENGER CAR^[1]

The change isn't coming, its already here.

In the world of professional landscaping and grounds maintenance, petrol has been the fuel of choice for over 100 years – mainly because there has been no viable challenger.

In the last ten years however, battery powered cordless equipment has begun to gain worldwide popularity and increased market share, signalling the most significant shift in the sector for decades. Three key factors are driving this trend: health & safety, the environment and economics. In each of these, the benefits of lithium-ion batteries over petrol are overwhelming.

Moreover, the emergence of new generation batteries and equipment by global manufacturers such as EGO[™] means that lithium-ion batteries and the products delivered by them can now match or exceed the performance of petrol, without any of the drawbacks. The tide is turning, and legislation may represent the final nail in the coffin for petrol.

BATTERY-POWERED EQUIPMENT FOR PROFESSIONAL USERS THE NEXT GENERATION.

Rapid advances in battery technology

The fact is, battery technology has come a long way, and changed dramatically even in recent years. This change has been led by major automotive manufacturers who know the days of petrol are over and are investing heavily in battery technology. Gone are the days of overheated, underperforming batteries with poor run-times. All of EGO's research and development efforts have gone into producing a battery platform that delivers the optimum amount of power over the widest range of equipment, with a focus on controlling heat mechanically, chemically, and electronically for the best run-times.

All of this means that market-leading equipment such as the EGO Power Plus's COMMERCIAL range is not only able to rival the performance of petrol alternatives, in many situations it actually exceeds it.

So, while petrol is still dominant in the professional market, the picture is changing rapidly and battery-powered equipment is gaining ground very quickly. Several factors are driving this shift.

The public sector wants grounds maintenance to go green

80% of councils in Australia have or are developing emissions reduction targets^{(1).} One of the key drivers in this change is how they procure and use goods & services. In Australia alone, local government councils spend \$43 billion annually on operational expenditure and manage over \$500 billion dollars of public assets. A significant portion of these assets & expenditure includes the maintenance of grounds, parks, open spaces, and leisure facilities.

As upholders of citizen well-being, public bodies are increasingly aware of their need to minimise their impact on the environment and address the health and safety risks associated with petrol, including noise and vibration levels.

We see this happening already in various examples. One such example is that from July 2024 the Department of Climate Change, Energy and Water (DCCEW) is introducing a new policy for sustainable procurement⁽²⁾ when purchasing goods or services. One of the key targets is of this policy is to procure products that 'minimise greenhouse gas emissions'.

With EGO COMMERCIAL products producing zero emissions when in use, this is a perfect example of how professional lawn care businesses can 'future proof' their businesses and embrace these emerging technologies.



The end of petrol?

With an increasing focus on public health and the environment, the use of fossil fuels is under

intensifying scrutiny, and legislation is already putting the squeeze on petrol.

In 2018, Australia banned companies from importing high-emission lawnmowers, mulchers, leaf blowers, generators, chainsaws, outboard boat motors and other hand-held equipment⁽³⁾. Virtually signalling the end to all 2 stroke engines being utilised in outdoor powered equipment products. But calls are growing for Australia to follow the lead of other global markets in banning the usage of petrol-powered garden equipment altogether to reduce noise and air pollution.

In a more recent announcement in North America, a 2020 report⁽⁴⁾ by the California Air Resources Board found that emissions from leaf blowers, lawnmowers, trimmers and chainsaws were higher than those emitted from the state's 14.4 million passenger cars. The US state deemed the pollution so harmful that it has outlawed all petrol-fuelled machines by 2024. With a population of almost 40 million people this is groundbreaking legislation that proves that the change isn't happening soon, it's already here.

And while many grounds maintenance professionals have embraced the inevitable and begun the migration to battery power, many remain hesitant. One of the main reasons they give for this is the perceived cost of investment. This argument collapses under closer examination which we will explore later on.

⁽¹⁾ https://alga.com.au/facts-and-figures/

⁽²⁾ https://www.dcceew.gov.au/environment/protection/waste/sustainable-procurement/environmentally-sustainable-procurement-policy

⁽³⁾ https://www.dcceew.gov.au/environment/protection/emissions-standards

⁽⁴⁾ https://ww2.arb.ca.gov/sites/default/files/2020-09/SORE2020_Technical_Documentation_2020_09_9_Final_Cleaned_ADA.pdf

ITS ALL ABOUT POWER SUPER-TOUGH, SUPER POWERFUL

For professionals who need equipment to keep running over extended periods, the assumption is that petrol has the edge. However, that's no longer the case. The EGO POWER+ Commercial range is engineered to work harder, all day, every day, in the most challenging conditions. Ergonomic design meets unrivalled power and performance with every EGO POWER+ Commercial tool. These tools push the boundaries of battery technology, with power and performance to meet and surpass petrol powered equivalents.

NM OF TORQUE @ 2500RPM





LBX1000 (1700m³/h Air Volume)

UNRIVALLED INNOVATION BATTERY TECH

Constant Innovation

The fact is, while petrol is the fuel of yesterday, battery is the technology of tomorrow. And it's advancing rapidly, with so much at stake for vehicle manufacturers, they're piling huge amounts into research and development, including partnerships with major research institutions. The Massachusetts Institute of Technology (MIT) for example is developing a new battery electrode which can deliver thousands of cycles without a loss in performance.

These advances are transferred rapidly to other applications, and as one of the world's leading suppliers of battery-powered cordless outdoor equipment, EGO is at the forefront. One of the few equipment manufacturers with an extensive R&D programme focused exclusively on batterypowered equipment, they've revolutionised the technology to deliver optimum power and performance for the professional market. The majority of components are built in-house. Others are sourced from major brands such as Sanyo and Samsung. The result is arguably the world's most advanced battery designed and engineered from the ground up for outdoor power equipment: the EGO ARC Lithium" battery.

Reliability

Professional lawn contractors need long working hours and reliable performance. To deliver the necessary voltage and amp hours, ARC Lithium™ batteries combine multiple lithium-ion cells in a single pack. Each cell is continually monitored by an intelligent power management system to optimise power, performance and run time.

Safety

Some lithium batteries have been known to overheat, leading to shut-down. ARC Lithium[™] eliminates this issue. Advanced design features include an increased surface area to reduce overheating and unique KeepCool[™] technology which insulates every individual cell. A robust casing protects all electronics from dust, moisture, and vibration to ensure safe and reliable operation in all environments, even during prolonged use.



CHARGING REVOLUTION CHARGING TECH

Infinite Runtime

Also, in the latest groundbreaking development, EGO has released the PGX[™] Commercial Charging System, an industry first charging solution designed for commercial landscaping. Power is amplified, and boundaries are defied for maximum uptime.

For a small crew to a large fleet, EGO Commercial's revolutionary POWER GRID X Commercial Charging,

or PGX[™], is a scalable & flexible solution that grows as your business does. The three-part system combines for ultimate flexibility: the PGX[™] charging Hub, 3 Port Dock and DC to DC Power Bank leverage the industry leading technology of the EGO 56V ARC Lithium[™] battery.

No longer are you shackled by costly systems and electrical infrastructure upgrades. With the PGX[™] Commercial Charging System, any standard outlet becomes a gateway to a fully expandable charging source, customisable for your fleet of equipment. With batteries that now often recharge faster than tools can deplete, this infinite runtime solution makes the transition from petrol to EGO Commercial a seamless reality.

The time then to transition from petrol, is now.

PGX™ BENEFITS

- Modular System
- Shared Charging Hardware
- 1 x 1600W Power Hub powers the entire system
- No Infrastructure Upgrade

- Scalable to your business
- Flexible Charging Components
- Portable Charge on the go with no AC required
- One Battery System Compatible with ALL EGO ARC Lithium™ batteries

CHARGE OVERNIGHT OR ON BOARD WITH THE PGX™ CHARGING SYSTEM

Charge multiple batteries Up to 200Ah in a 12 Hour period



Charges 2 x 5.0Ah ARC Lithium Batteries in 30mins!







THE HEALTH AND SAFETY FACTOR NOISE

After air quality, the World Health Organisation considers noise to be the largest environmental cause of health problems with excessive noise in the workplace causing 16% of hearing loss.

In fact, according to Safe Work Australia⁽⁵⁾, between 2015-2020 a total of 23,693 worker's compensation claims were made in Australia for hearing loss. Of these claims 80% came from trades, laborers, and machinery operators not dissimilar to outdoor power equipment such as Lawn Mowers, Line Trimmers and Leaf Blowers. Furthermore, 97% of these cases were caused by long term exposure to hazardous noise.

As everyone knows, commercial petrol powered equipment can be very noisy when used day in day out over long periods. This represents then, a significant risk to the health and wellbeing of any professional lawn care contractor.

Most professional users will have experienced such noise first-hand and understand that regular exposure can lead to hearing damage including tinnitus and even hearing loss. In some cases, it can be an underlying cause of bigger issues including cardiovascular troubles, cognitive impairment and can even cause mental health problems such as stress, anxiety and depression.

In one specific example, a generic petrol line trimmer will generate sound levels of well over 100dB(A). This is equivalent to standing around 300 metres from a jet plane taking off! Worksafe Australia also states that workers must not be exposed above 85 decibels (as an average) over eight hours at work.⁽⁶⁾ Given the EGO Commercial range has an average of 84.4 DbA (LpA) across the entire range, this is an exponentially quieter option than petrol equivalents and a far more safer for lawn contractors to use day in day out.





An increase of 3 dB represents a doubling of the sound pressure, while an increase of about 10 dB is required before the sound subjectively appears to be twice as loud. In the examples above the majority of petrol-powered products are perceptively twice as loud as our EGO POWER+ battery versions.

(5) https://www.safeworkaustralia.gov.au/doc/infographic-hazardous-noise-workplace

(6) https://www.safeworkaustralia.gov.au/safety-topic/hazards/noise/overview#: :text=The%20noise%20exposure%20standard&text=Workers%20must%20not%20be%20exposed,on%20decibels%20 and%20time%20exposed.

THE HEALTH AND SAFETY FACTOR VIBRATION

A common factor in petrol powered outdoor power equipment, Hand Arm Vibration (HAV) causes numbness and muscle weakness which can lead to serious conditions such as Vibration White Finger (VWF), Carpal Tunnel Syndrome and even gangrene.

HAV is common in many industrial workplaces, not least grounds maintenance where the damaging effects of petrol powered tools such as leaf blowers, chainsaws, mowers and line trimmers/brush cutters are widely recognised. According to Donald Peterson, Dean of the College of Science, Technology, Engineering and Mathematics at Texas A&M University -Texarkana. "(HAV) ... is probably the number one neuromuscular disorder in the world in manufacturing and construction environments, the most costly, and underappreciated."⁽⁷⁾ Aside from the potential financial repercussions of personal injury claims, employers have a duty of care to provide a safe work environment also.

According to Safe Work NSW & Section 19 of the Work Health and Safety (WHS) Act 2011, a person conducting a business or undertaking (PCBU) has a primary duty to ensure, so far as is reasonably practicable, that worker exposure to HAV is eliminated. Where elimination is not reasonably practicable, the PCBU must minimise the risk so far as is reasonably practicable.

Part of the control measures of the Act are to provide a substitution of work method or alternative equipment selection. Anything above an EAV of 2.5m/s² A(8) represents a clear risk requiring management and/or control measures to be implemented.

And this is where EGO POWER+ products come in, the majority of our products are well below the daily Exposure Action Value (EAV) of 2.5m/s² A(8) ensuring that the health & safety of lawn contractors is never compromised.

The Hand Vibration levels across the entire EGO Commercial range averages 1.8m/s² – much less than the maximum daily exposure levels recommended by Safework Australia.



(7) https://www.safework.nsw.gov.au/hazards-a-z/vibration/types/hand-arm-vibration

THE HEALTH AND SAFETY FACTOR Emissions

The last, and possibly most lethal of hazards relating to petrol-powered equipment, are emissions caused by burning fossil fuel. The major culprits here are Carbon dioxide (CO2) and Nitrogen oxides (NOx).

Both are harmful to the environment, affecting soil chemistry as well as impacting on climate change, and both are harmful to health, causing inflammation of the airways and a range of respiratory infections.

Traditionally, cars have been big contributors of these gases, but automotive manufacturers have dramatically reduced the risk. For example, one of the most popular vehicles currently on the roads generates less than 0.5g/km of carbon monoxide – an amount considered low under current regulations. Unfortunately, petrol-powered outdoor equipment hasn't followed suit. Millbrook, one of the UK's leading emissions testing specialists, measured three petrolpowered tools – and each exceeded this figure. The poorest performing of the tools – a leaf blower, generated the equivalent of 21.73g/km. Even the best performing tool – the petrol powered hedge trimmer – produces 1.56g/km, over 3X the car! It's the same story with NOx, with the car producing 0.08g NOx/km, and the brush cutter emitting the equivalent of 0.33g/km. These findings aren't an anomaly.

In 2017, The Deutsche Umwelthilfe e.V. one of Germany's leading environmental organisations – measured emissions from European petrol-powered outdoor equipment, including motor saws and brush cutters. Of the 21 items investigated, nine failed to comply with EU limit values for HC+NOx (hydrocarbons and carbon monoxide), while three also exceeded the limit value for CO(X). Berlin, Germany's capital, alongside Los Angeles have both introduced a ban on petrol-powered leaf blowers, while California is set to ban petrolpowered outdoor power equipment by 2024.

It's only a matter of time until Australia & New Zealand follow this environmental global trend in banning & restricting petrol outdoor powered equipment. Fortunately for professional lawn contractors, the viable alternative is already here with the EGO Commercial range.

Battery-powered equipment such as EGO's Commercial range has no emissions during use, and so by switching from petrol, it's possible to make an immediate and positive impact on the environment and people's health.

CO MASS CONVERTED TO G/KM

	CO MASS Mg/s	CONVERTED TO G/KM
LEAF BLOWER	301.8	21.73
BRUSHCUTTER	42.6	3.07
HEDGE TRIMMER	21.6	1.56
2018 FORD FIESTA		(0.5



NOX MASS CONVERTED TO G/KM

	NOX MASS Mg/s	CONVERTED TO G/KM
LEAF Blower	2.3	0.17
BRUSH Cutter	4.6	0.33
HEDGE TRIMMER	3.3	0.24
2018 FORD FIESTA		(0.08



THE HEALTH AND SAFETY FACTOR Emissions

Today, operating a commercial lawn mower for one hour emits as much smog-forming pollution as driving a new light-duty passenger car about 482 kilometres – about the distance from Canberra to Newcastle, more than 4 hours of drive time.



1 Hour petrol lawn mower use

Driving 436kms from Canberra to Newcastle

For a commercial leaf blower, one hour of operation emits smog-forming pollution comparable to driving a new light-duty passenger car about 1770 kilometres – about the distance from Melbourne to Brisbane, over 18 hours of driving.



1 Hour petrol leaf blower use



Driving 1776kms from Melbourne to Brisbane

THERE'S A CLEANER SOLUTION -EGO POWER+ PRODUCTS.

THE FINANCIAL CASE For Battery-Power

Lawncare professionals operate in competitive and challenging markets, especially now. Overheads are high, margins are tight. They have to deal with cash-flow issues, and shortages of labor and supplies. Material costs are rising, and the price of energy has hit troubling new heights.

Now more than ever, every dollar counts. So the thought of investing in battery-powered equipment isn't necessarily at the forefront of their minds – especially as the upfront cost of the equipment is often higher than petrol.

False economy

When we look just a short way into the future and the rise of 'green purchasing', which is essentially a blueprint for battery power, investing in petrol really is a false economy. Equally, while the cost of petrol is currently steady, there's little doubt about its direction of travel over the coming years.

Immediate cost benefit

The main argument for investing in battery powered equipment lies in the immediate cost benefits it delivers. These are significant. For while battery-powered equipment may be a little more expensive as an upfront cost – mainly because of the cost of lithium batteries themselves - this is quickly offset by the far cheaper running costs – maintenance, servicing, and repairs as well as the price of fuel. See one example of this in the table on the opposing page.

Tool maintenance

The fact is, grounds maintenance professionals work long hours and demand reliable, robust equipment. EGO's Commercial range is both designed and renowned for this, but the real advantage lies in the battery itself. Compared with a petrol combustion engine a battery powered outdoor equipment tool has far fewer moving parts, minimizing the risk of failure. It needs little or no servicing in comparison, virtually eliminating maintenance costs and the concept of downtime. There's no need for expensive repairs or spares from dealers. Nor do batteries require costly lubricants. Each of these factors delivers cost savings which add up quickly over a short period.

Beyond the hard cash benefits...

These represent just the hard direct costs of savings. There are other hidden financial benefits too. Battery-powered equipment is lighter, meaning less stress for users, so they can work longer improving their productivity per hour. And because it's quieter and pollution-free, it can be used in places where petrol is prohibited – for example, schools, hospitals, aged care facilities and public spaces where restrictions concerning the use of equipment might apply. This offers the potential to extend the working day and even to take on contracts that might not be available for petrol-powered equipment alternatives.

Last but not least, there's a weight of evidence to demonstrate that EGO's tools deliver all the power of petrol-powered tools without the associated health & safety issues including noise, vibration, and toxicity (REF). This means it's less harmful to operators, resulting in fewer days off work, fewer expensive injury claims, and a reduced administrative burden for the employer. The result being, you have a healthier and happier team all round.

Petrol-beating benefits...

USING 2 STROKE MIX MOWER	
FUEL* / OIL** COST PER LITRE	\$2.48
LITRES PER DAY	2
COST PER DAY	\$4.96
COST PER MONTH	\$99.17
USING 4 STROKE MOWER	
FUEL COST PER LITRE	\$1.84
OIL COST PER DAY	\$0.73
LITRES PER DAY	2
COST PER DAY	\$4.41
COST PER MONTH	\$88.20

USING EGO POWER+ MOWER		
\$0.18		
4		
\$0.72		
\$14.40		
EGO POWER+ MONTHLY SAVINGS		
\$84.77		
\$73.80		



All estimated calculations based on a commercial 4 hour use per day and a 20 day working month. Does not take into account service costs.

EGO calculations based on daily use of an EGO Power+ Mower with a 7.5Ah Battery charged on a 550W Rapid Charger.

* Cost of fuel based on published Australian AVG cents per litre. Source:http://www.aip.com.au/pricing/national-retail-petrol-prices

** Cost of oil based on 4L purchase and 25:1 mix ratio.

[^] Cost of oil based on 4L purchase, 500ml oil well and 50 hour oil change.

~ Charge cost based on 32.0c per KwH (Average Australian cost of electricity) - Source: https://www.canstarblue.com.au/electricity/electricity-costs-kwh/

Note: Whilst all care has been taken to ensure data in the above calculations is accurate, figures and calculations presented are intended as a guide only and should not be treated as authoritative.

PETROL VS. EGO POWER+ A COST COMPARISON

Cost estimates are based on a customer purchasing three tools from the EGO Commercial range - the STX4500 Line Trimmer, the HTX5300-P Hedge Trimmer and the LBX1000 Leaf Blower, plus 3 x 5.0Ah batteries and a turbo charger to run all three tools and petrol powered equivalent tools and fuel.

PETROL		EGO COMMERCIAL	
INITIAL OUTLAY YEAR 1	•		
	TOOLS \$2,647.00	TOOLS \$ 2,027.00	
A .	ANNUAL SERVICING & Parts \$500.00	BATTERIES & Chargers \$1,366.00	9 1 ,
Ĩ	FUEL* \$728.64	ELECTRICITY \$242.40	
COST YEAR 1	\$3,875.64 Inc.purchase of tools	\$3,635.40 Inc.purchase of tools	\$240.24 Year 1 saving
COST YEAR 2	\$1,290.07 Fuel & Servicing	\$266.64 Recharge cost only	\$1,023.43 Year 2 saving
COST YEAR 3	\$1,354.58 Fuel & Servicing	\$293.30 Recharge cost only	\$1,061.28 Year 3 saving
COST YEAR 4	\$1,422.30 Fuel & Servicing	\$322.63 Recharge cost only	\$1,099.67 Year 4 saving
COST YEAR 5	\$1,493.42 Fuel & Servicing	\$354.90 Recharge cost only	\$1,138.52 Year 5 saving
TOTAL COST of ownership	\$9,436.01	(\$4,872.87) IN \$	saving at year 5 by vesting in cordless 4,563.14

Assuming average elecricity prices increase by 10% year on year

Assuming average electricity intest inclease by Eve on year Assuming average electricity intest inclease by Eve on year *Petrol/Fuel usage estimates based on 1 full fuel tank use per day (for the 3 tools noted) over 20 working days per month RRP Pricing of tools, equipment correct as per 01032025 - pricing listed is the RRP of separate items and does not take into account battery redemptions, specials and/or kit configurations which may provide even further asvings. Cost of fuel per litte (\$1.84) based on XVG cents per litte. Calculation based on refilling listed machines once each per day. Source: Australian Institute of petroleum. http://www.aip.com.au/pricing/national-retail-petrol-prices #Drage one to per yeak (American American cost of electricity) and using a 200W Turbe Charger to phare 9 & 9.02000. TABC Lithium batteries ear day. Source, batter//www.constablue.com av/

Technique of prices and the second second

THE TIME TO INVEST

In summary then, while petrolpowered equipment has traditionally been the fuel and tool of choice for lawn contractor professionals, the picture has and continues to change fast.

Governments, legislation, and procurement practices are pushing heavily for low-impact technology. Equally, professionals want more bang for their buck along with healthier and more productive employees. These factors are bringing battery power to the fore, and the continued investment in technology and the charging infrastructure will only accelerate this further. Add to this a growing awareness that battery power delivers the same performance as petrol, while also delivering long-term cost savings to businesses, and everything's in place for the battery revolution. The technology is truly future-proofed, so even if there's resistance to a complete migration from petrol to battery at this moment in time, it makes sense to start the journey in small steps now. And as one of the world's biggest manufacturers for the outdoor equipment industry, it makes sense to take those steps with EGO.

PERCEIVED BARRIERS TO ADOPTION	HOW EGO COMMERCIAL OVERCOMES IT	
High up-front cost of equipment.	Fast return on investment, and lower total cost of ownership.	
Petrol is the fuel of choice – it's available and easy.	The new generation of EGO's Commercial range is a breakthrough in power and durability to keep the professional lawn contractor working all day long.	
Battery can't match the power of petrol and won't get the job done.	EGO's industry-leading 56V ARC Lithium batteries can match and often exceed petrol power.	
Charging batteries is time consuming and tricky to get right.	EGO Commercial's new PGX™ Commercial charging system allows seamless charging solutions both in the workshop and on the go fo continuous up time.	
Workers prefer petrol	Battery-powered equipment reduces noise and harmful emissions, as well as vibration making it safer and more comfortable to use.	

COMMERCIAL POWER WITHOUT THE OR FUMES.



THE CASE FOR BATTERY-POWERED EQUIPMENT Redefined for professionals.

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